Future Naval Capabilities (FNC) Portfolio
Dr. Joseph Lawrence
Director of Transition, ONR

The Office of Naval Research
$476M

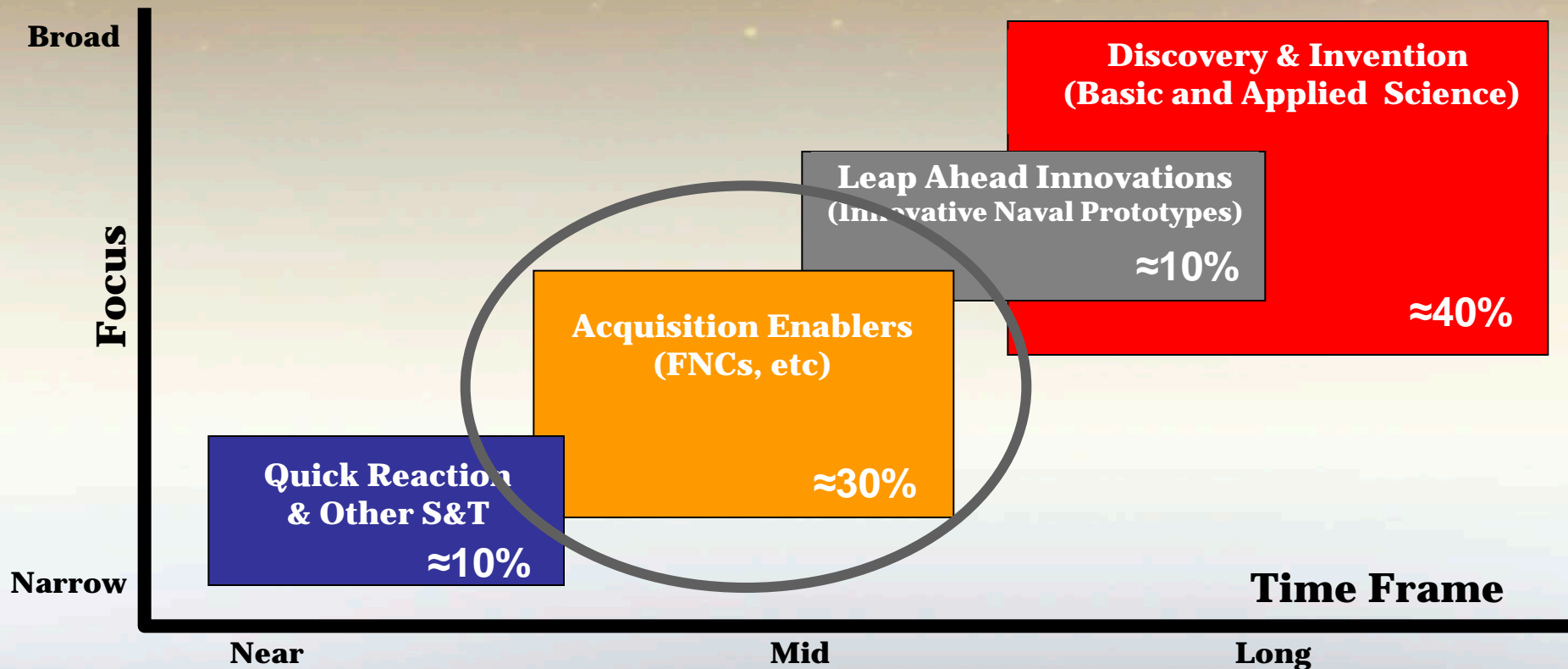The **Office of Naval Research** invests in innovative operational concepts to develop the science and technology (S&T) that ensures our warfighters always have the **technological edge.**

ONR Mission – "to plan, foster, and encourage scientific research in recognition of its paramount importance to future Naval power and national security." — Public Law 588 of 1946

DoN S&T Portfolio Focus to Meet Naval Needs

PB11 DON S&T Funding = $1,974.8M

Focus: Broad → Narrow (vertical axis)

Time Frame: Near → Mid → Long (horizontal axis)

- **Discovery & Invention (Basic and Applied Science)** ≈40%
- **Leap Ahead Innovations (Innovative Naval Prototypes)** ≈10%
- **Acquisition Enablers (FNCs, etc)** ≈30%
- **Quick Reaction & Other S&T** ≈10%

Quick Reaction	**Acquisition Enablers**	**Leap-Ahead Innovations**	**Discovery & Invention**
• Tech Solutions • Experimentation • MC S&T (MCWL, JNLW, etc.)	• Future Naval Capabilities • LO/CLO	• Innovative Naval Prototypes • NSPs • Swampworks	• Basic & Early Applied Research • National Naval Responsibilities • Education Outreach HBCU/MI

Initiated in FY02

➢ Focus S&T Critical Mass on Highest Priority capabilities

➢ Facilitate Flexible, Responsive, and Consistent Prioritization

➢ Ensure focused Transition to Acquisition and Naval Forces

Align Requirements, Acquisition, Fleet, and S&T Community

The FNC program is composed of Enabling Capabilities (ECs) that develop and deliver quantifiable products (i.e., prototype systems, knowledge products, and technology improvements) in response to validated requirements (Naval S&T Gaps), approved by Pillar IPTs and the Technology Oversight Group (TOG), for insertion into acquisition programs of record, after meeting agreed upon exit criteria, within five years.

Impact of S&T Investment Increased

Technology Oversight Group

TOG

- **Co-Chairs:** N8 / MCCDC
- **Permanent Members:** PMD ASN (RDA), DCOM USFF, N091/CNR, N2/N6
- **Equity Members:** N1, N093, Deputy CNOs and Deputy Commandants

  N8F – Executive Secretary ★★★

TOG Working Group

- 0-6/GS-15 Level Representatives of Each TOG Member
- Interacts with IPTs and makes recommendations to TOG

FNC IPTs

Sea Shield	Sea Strike	Naval Expeditionary Maneuver Warfare	Sea Basing
24 ECs, $586M	**12 ECs, $305M**	**12 ECs, $192M**	**6 ECs, $134M**
• OPNAV N86	• OPNAV N87	• OPNAV N85B	• OPNAV N85B
• MCCDC	• HQMC Aviation	• HQMC PP&O	• Dep. CG MCCDC
• USFF N803	• USFF N8	• USFF N8	• USFF N804
• PEO LMW	• PEO U&W	• MCSC	• PEO Ships
• ONR 32	• ONR 35	• ONR 30	• ONR 33

FORCEnet	Enterprise & Platform Enablers	Force Health Protection	Capable Manpower
18 ECs, $487M	**16 ECs, $340M**	**7 ECs, $109M**	**9 ECs,$145M**
• OPNAV N6F	• OPNAV N8F	• OPNAV N931	• N15
• Dir HQMC C4	• HQMC I&L	• TMO, USMC	• USMC Training/Ed.
• NETWARCOM	• USFF N433	• FFC N02H	• USFF N1D
• SPAWAR 05	• NAVSEA 05	• NMSC	• NAVAIR TSD
• ONR 31	• ONR 03T	• ONR 34	• ONR 34

FNC Process

1

FEB – JUN

OPNAV/USMC identify S&T gaps

April - Roundtables

2

APR – OCT

ONR develops EC proposals
Internal Technical Review

3

NOV – JAN

Pillar IPTs review and prioritize EC proposals

Sends to TOG WG

6

APR

S&T resource sponsor submits program proposal

5

MAR

TOG establishes final ECs Priorities List

4

JAN – FEB

TOG WG recommends consolidated priorities list

A Collaborative Process Involving All Stakeholders

Take Away

- 16 New ECs will be starting next year.

- Industry participation is typically 66%.

- BAAs or RFPs will be released early in CY11 (2nd/3rd Quarter FY11) for contract award prior to FY12.

- Your early engagement can help us refine our plans, prior to BAA/RFP release.

Future Naval Capability (FNC)

Enabling Capabilities (ECs)

FNC Enabling Capabilities

Enabling Capability Title	EC Descriptive Summary
Live, Virtual, & Constructive Training Fidelity	Optimizes the training pipeline, acquisition decision process and warfighter capability by linking fidelity requirements to individual, unit and multi-team competency requirements.
Renewable-Sustainable Expeditionary Power	Provides increased electric power self-sufficiency for Marine Expeditionary operations.
Future Joint Counter Radio-Controlled IED Electronic Warfare (JCREW)	Improves counter-RCIED effectiveness against current and future IED threats.
Wide Area Surgical and Persistent Surveillance (WASPS) Capabilities For Tier 2/3 UAVs	Reduces the timelines for detecting, classifying, identifying and targeting.
Corrosion Mitigation Technologies and Design Integration	Provides acoustic damping systems, surface treatments and informed design integration to reduce TOC and enhance readiness.
Integrated Hybrid Structural Management System (IHSMS)	Enables component retirement time adjustments & maintenance removal criteria expansion.
Long Endurance Undersea Vehicle Propulsion	This EC will enable energy dense propulsion systems to support long endurance undersea vehicle missions, such as ISR and MCM.
Fuel Efficient Medium Tactical Vehicle Replacement (MTVR)	Improves the fuel efficiency of the Marine Corps medium tactical vehicle, the MTVR.
Automated Critical Care System (ACCS)	Provides 7 subsystems, which act in concert to provide medical care for critically injured/ill patients.
Advanced Tactical Data Link (ATDL)	Provides an integrated data link solution implemented within a software-defined radio.
Autonomous Persistent Tactical Surveillance	Provides autonomous control of a network of sensors, enabling ISR assets to provide information to the mobile user.
Force Level Radar Resource Management for Integrated Air and Missile Defense (IAMD)	Provides radar resource efficiencies in performing the search, track, and engage functions under high density raid threat.
Sonar Automation	Increases passive and active sonar automated performance.
Detection and Neutralization of Near-Surface Drifting-Oscillating Mines	Reduces the timelines for DCL and neutralization of surface and near-surface drifting/oscillating mines.
Submarine Survivability - Electronic Warfare.	Provides an Electronic Attack capability against surveillance radar systems to submarines.
High Energy SBC Fiber Laser System	Develops a minimum of a 25 kW High Energy Fiber Laser system operating in the short wave infrared region.

Live Virtual Constructive Training Fidelity

Technical Description

This Enabling Capability (EC) is designed to provide instructors with a capability to script scenarios for Live, Virtual & Constructive (LVC) individual, unit and collective training events *driven by the* functional, physical and cognitive fidelity required to achieve training and readiness (T&R) credit. This EC will provide technologies and strategies that can be used to understand, manage, and maintain the next generation heterogeneous training environments enhancing readiness.
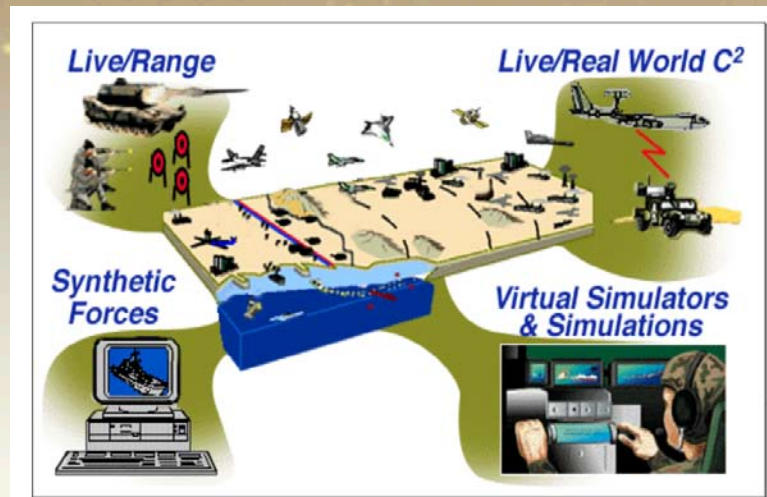
S&T Focus

- Development of intelligent voice-capable semi-automated force models that reflect LVC tactical training/role-playing needs
- Development of virtual/synthetic environment that reflects functional, physical and cognitive cues optimizing training competency achievement
- Development of design guidelines and prototype for effective and safe representation of virtual and constructive assets on live displays

Warfighter Payoff

- Lower total ownership costs – by reducing time spent on live training ranges & preserving frame life
- Improve safety – enhance safety of warfighters in live events via advanced displays
- Enhance fleet readiness through technologies that reflect authoritative tactical training need
- Reduce Manning by providing viable fleet roleplayer substitute

Pillar: CMP
EC Manager: Dr. Ami Bolton
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Renewable-Sustainable Expeditionary Power

Technical Description

- The Renewable Sustainable Expeditionary Power (RSEP) Future Naval Capability (FNC) Enabling Capability (EC) is a multi-platform, tactical 3-5 kW renewable-hybrid power system developed for Marine Corps Expeditionary Forces. The product reduces expeditionary energy consumption, provides increased self-sufficiency, reduces aural detectability, and improves affordability.
- Heat from Concentrated Solar Thermal (CST) energy and a multi-fuel burner drives a thermal-to-electric converter, producing electric power.

Tactical, deployable, stowable, solar thermal concentrator, burner, and thermal-to-electric converter

HMMWV-towable, M1101 Light Tactical Trailer

S&T Focus

- Ability to burn logistics fuels, biofuels, and solid fuels
- Efficient, quiet, low-maintenance thermal-to-electric converter
- Development of tactical concentrator with 2-axis control and suitable for military environment
- Automated concentrator deployability
- Stability / Dynamics associated with Heat transfer medium (solid-fluid-phase change…ceramics / molten salts…)
- Thermal controls, time constant, system controls
- Thermal energy storage approach for extended operation

Warfighter Payoff

- Supports Forward-Deployed Enhanced Company Operation needs
- Reduces logistics tail
- Improved Force Protection
- Enables staggering of fuel resupply
- Enables short-term silent operations
- Enables sustained low noise missions
- Enables longer missions
- Increased tactical energy independence

Pillar: EMW
EC Manager: Ashley Johnson
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Future JCREW

Technical Description

This product will provide the technologies to support Joint Counter Radio Controlled IED Electronic Warfare (JCREW) evolution to provide interoperability with blue force communications (BFC), extreme bandwidth coverage, comprehensive spectral awareness, simultaneous transmit and receive, distributed and coordinated high power EW and real-time, on-mission reconfiguration and reprogramming.
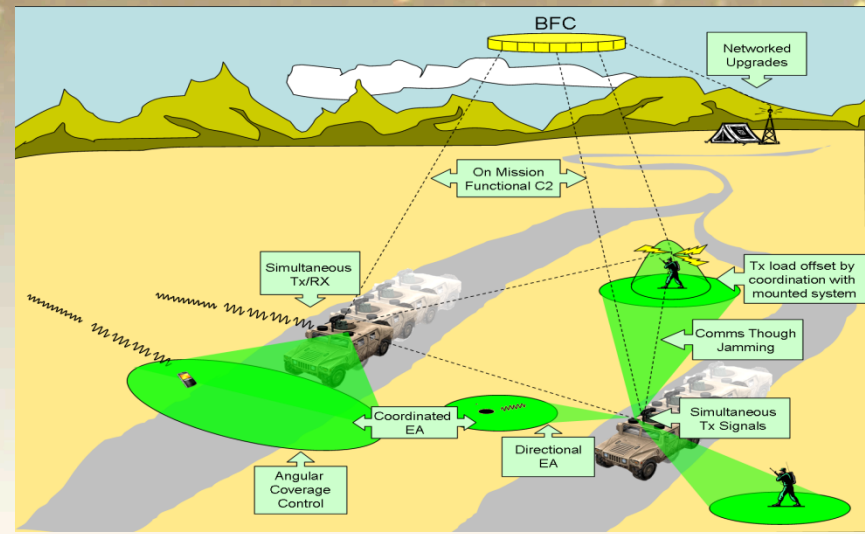
S&T Focus

- Development of a RF technology that allows for interoperability between JCREW and BFC.
- Development of low Size, Weight and Power (SWaP) and digitally controllable RF hardware
- Development of high RF spectrum analysis and threat signal identification signal processing techniques
- Development of multi-function, low profile, wide bandwidth, and high power RF apertures
- Development of cross platform Resource Allocation Management (RAM)

Warfighter Payoff

- Improved Situational Awareness and preservation of BFC while jamming
- Networked JCREW resources allowing for efficient Counter-RCIED operations
- Robust architecture to support rapid system upgrades to meet evolving RCIED threats

Pillar: EMW
EC Manager: Dr. Peter Craig
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Wide Area Surgical and Persistent Surveillance Capabilities for Tier 2/3 UAV's

Technical Description

This program will provide revolutionary tactical day/night wide area and surgical persistent ISR capability for Tier-2/3 UAVs.
The effort includes the development of an performance enhanced integrated EO / IR / SAR / SIGINT tactical UAS sensor with supporting on-board fusion processing to enable an ISR Targeting capability.
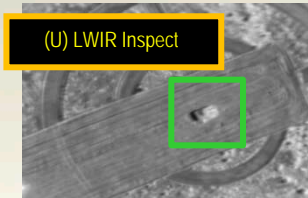This program will also support the development of a high resolution tactical MWIR WAAS payload.
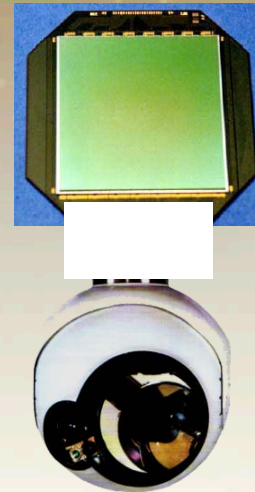
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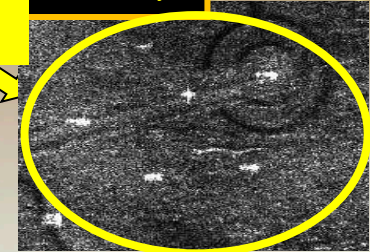
(U) LWIR Inspect

S&T Focus

Development of :

- 8Kx8K starting Infrared focal plane array with supporting compact, lightweight imaging module and compact, lightweight stabilized mount
- A compact tactical multi-INT UAS sensor with supporting analysis algorithms integrated into a small, lightweight common Multi-INT Software Reprogrammable Processor to enable real-time EO/IR/SAR/SIGINT data fusion and target recognition.

Warfighter Payoff

- UAS based sensing provides forward deployed Marines with direct and organic intelligence, surveillance and reconnaissance while reducing manpower and platforms requirements.

- UAS based sensing will be able to support many different units by providing both a wide area eye and a multi-INT close up look that support real-time feeds.

- This project will increase UAS night coverage area by 256 times from a single sensor and enable real time fusion of multi-INT data

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Corrosion Mitigation Technologies and Design Integration

Technical Description

Develop, demonstrate and implement fully integrated low cost corrosion control/ acoustic damping systems, wear resistant surface treatment technologies and design modules which will provide extended platform/system service life, reduce or eliminate corrective maintenance actions and reduce total ownership costs.

Muzzle Door Linkage Failures

Corroded aluminum pipe at bronze CMWD nozzle

Initial Design

Corrosion Risk

Multitude of failures
Maintenance intensive

Galvanic Interaction at Bulkheads

S&T Focus

- Develop interactive design modules based on corrosion mechanism models and data bases to provide a corrosion knowledge base that can be employed during platform/system design phase.
- Develop a low cost high performance single step corrosion/wear resistant surface treatment process that can be applied to a wide range of naval engineering materials.
- Develop a robust rapidly deployable long life seamless damping technology with integrated corrosion control that can be supported and installed at the shipyard and depot level

Warfighter Payoff

- Increased operational readiness
- Increased safety
- Enhanced mission capability
- Reduced construction and repair costs
- Reduced maintenance time and costs
- Reduced lifecycle costs

Pillar: EPE
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Integrated Hybrid Structural Management System (IHSMS)

Technical Description

A network of small, wireless, energy harvesting sensors distributed throughout a helicopter's metal and composite structure, gathering and reporting strain, vibration, and temperature data to a central processor for loads monitoring and structural life and health management.
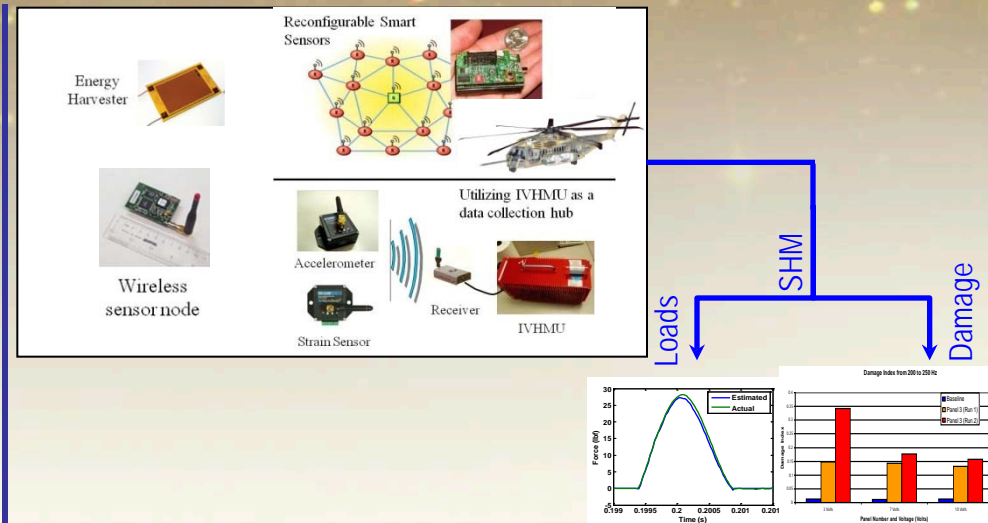
S&T Focus

- Rotor / Hot Spots Sensor Integration
  - Apply available sensors to strategic locations
  - Develop integrated hybrid monitoring architecture, algorithm and data management for collecting accurate load data in both rotating and fixed frame.
- Distributed Structural Micro-Sensor Nodes
  - Develop postage-stamp size nodes with strain / temp sensing, self-powered, data storage and wireless transmission, in a robust reliable package for use throughout rotor & airframe
  - Develop load and damage algorithms

Warfighter Payoff

- 15% reduction in Material / Maintenance Cost
- Fleet Life Cycle Cost savings of over $1B
- 20% reduction in touch labor
- 75% reduction in reactive maintenance
- Reduced risk of material failure mishap
- Weight & Center of Gravity info to enhance loading ops / safety

Pillar: EPE
EC Manager: Malinda Pagett
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Availability: Conf. hours

Long Endurance Undersea Vehicle Propulsion

Technical Description

This EC will deliver a long endurance, <u>scalable</u> air independent energy storage solution for undersea vehicles. It will provide a significant improvement in stealthy undersea propulsion technology. This EC will also enable rapid turnaround energy dense propulsion systems to support long complex multi-mission scenarios, such as ISR and MCM.
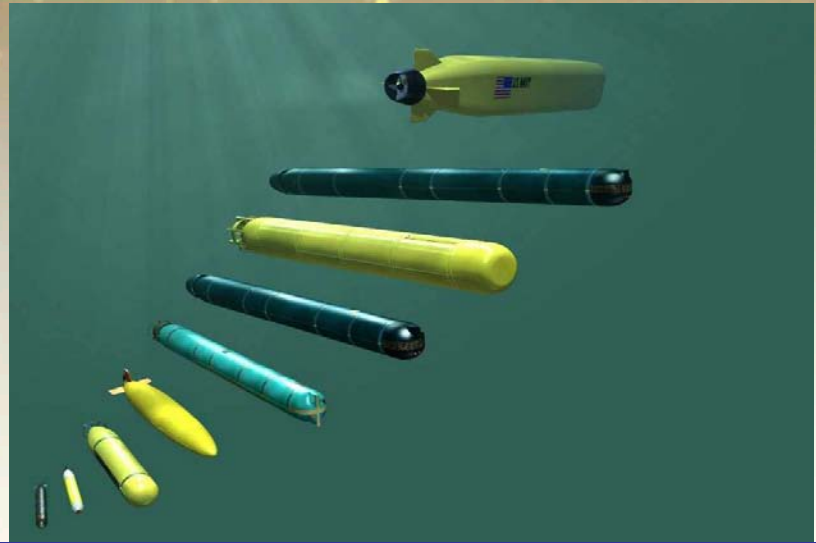
S&T Focus

- Development of a 300-500 Wh/kg energy system, capable of 5 kW threshold/10 kW objective system.
- Demonstrate 60 hrs threshold/100 hrs objective endurance (single run time) for 21" diameter vehicle.
- Show 3-5 start/stop cycle capability and refuelability.

Warfighter Payoff

- Extended endurance for UV missions, e.g. ISR and MCM

- Significantly reduced turn-around times & maintenance costs

Pillar: EPE
EC Manager: Dr. Michele Anderson
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Fuel Efficient Medium Tactical Vehicle Replacement (MTVR)

Technical Description

This product will improve the fuel efficiency of the Marine Corps medium tactical vehicle, the MTVR. A suite of affordable fuel efficiency enabling technologies to include an advanced fuel efficient engine, idle reduction approaches, electrification and variable output control of mechanical auxiliaries, and hybrid electric drive with regenerative braking is estimated to provide 15% fuel efficiency improvement over the existing MTVR.

JP8 Optimized Engine

Hybrid Electric Transmission

Auxiliary Electrification

APU and Energy Storage

S&T Focus

- Integrated system demonstration of an improved fuel efficiency 6x6 medium tactical vehicle with:
  - Turbo machinery, fuel injection, rail & cylinder pressures, compression ratio, and cylinder geometry optimized for a JP8 non emissions compliant engine
  - Electrification and variable output control of mechanical auxiliaries for idle reduction
  - "Mild Hybrid" drive consisting of integral starter generator and energy storage for regenerative braking and electric acceleration assist
- Demonstrate concept feasibility, sub-component suitability to task and interoperability, system operability and producibility, and fuel consumption reduction potential of selected fuel efficiency enabling technologies.
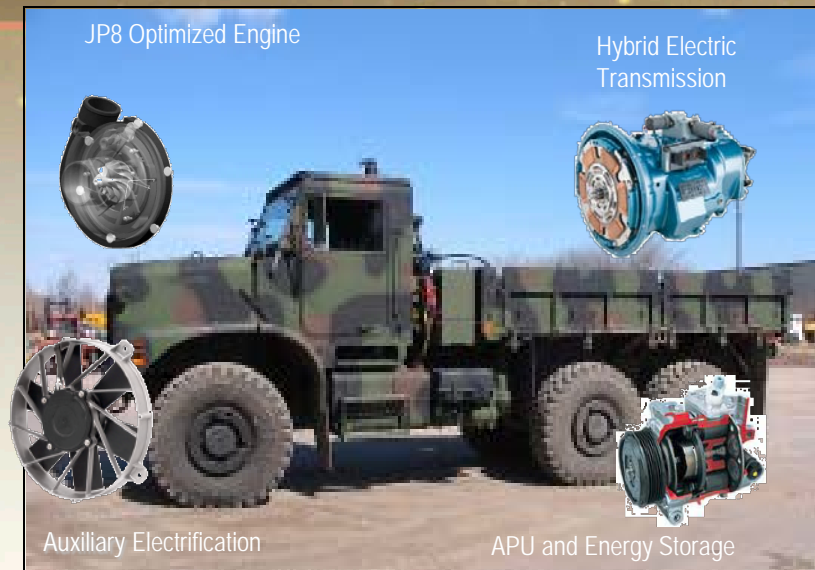
Warfighter Payoff

- 15% fuel efficiency improvement in the deployed MTVR fleet results in an estimated $22M per year savings in fuel costs (assuming $20/gallon Fully Burdened Cost of Fuel)
- Reduce fuel and fuel support equipment required to sustain today's fighting forces in battle.
- Reduce total ownership cost of MTVR through fuel efficiency improvement.

Pillar: EPE
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Automated Critical Care System

Technical Description

The product is a system of systems that will provide guidance to care-givers (decision assist mode) for the management of casualties, or manage the casualty without human intervention (autonomous mode). The expeditionary combat environment does not currently provide or allow for constant monitoring. *This capability provides effective recognition of unstable conditions allowing for earlier intervention which will **save lives** and improve patient outcomes resulting in fewer hospital days, reduced cost of treatment, and quicker return to duty.* **The capability will also enable Seabasing, USMC ECO, and CASEVAC by unmanned vehicles in the future.**

What the ACCS System Will

88% (15/17) of in flight tasks which demonstrates feasibility

Mechanical Ventilation

Supplemental Oxygen Therapy

Physiologic Monitoring

Analgesia/Anesthesia

Fluid and Drug Therapy

Casualty and Fluid Warming

Patient data accumulation, storage & transmission

- Assess Patient Status
- Monitor/Assess/Manage BP
- Monitor/Assess/Manage EKG/Pulse
- Monitor/Assess/Manage Core Temp
- Monitor/Assess/Manage Blood Ox
- *Provide Instructions/Reassurance*
- Monitor/Assess Neurological Status
- Monitor/Assess Airway/Breathing
- Perform Suction to Maintain Airways
- Maintain Patient on Ventilator
- Provide Continuous O2
- Measure/Records Urinary Output
- Warm Infusion Fluids
- Perform Active Patient Warming
- Administer Intravenous Fluid (pressure infusion capable)
- *Reinforce Dressings*
- Administer Medications

S&T Focus

Software algorithm development to control the interaction of multiple hardware sub-systems to provide automated critical care

Testing of system in large animals with increasing injury complexity (monotrauma > polytrauma > polytrauma + TBI)
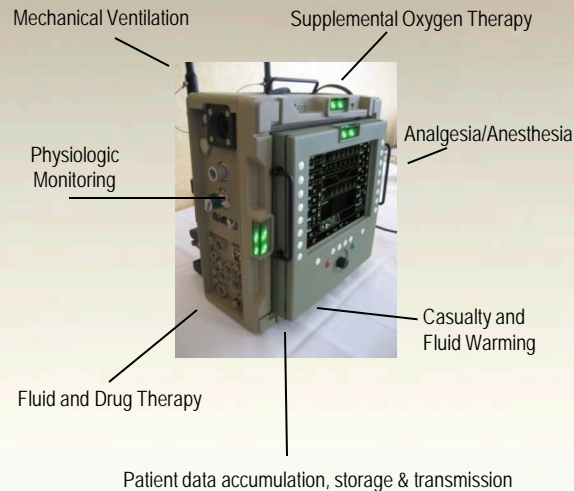
Evaluation under field conditions

Clinical trials

Warfighter Payoff

The ACCS will provide continuous monitoring of the patient allowing for faster intervention which will yield improved survival and outcomes. The system affords appropriate intervention in the absence of a skilled caregiver and reduces manpower and logistics demand.

Pillar: FHP
EC Manager: Dr. Michael Given
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Availability: Conf. hours

Advanced Tactical Data Link (ATDL)

Technical Description

This product develops the network technologies needed for an integrated data link solution with better throughput, anti-detection, and anti-jam characteristics to enable cooperative integrated fire control across the across the full range of warfighting domains (air, maritime, and ground) and missions.
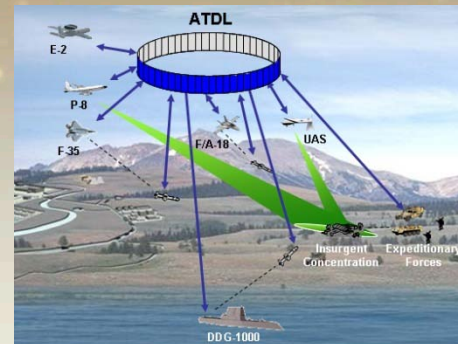
Irregular Warfare
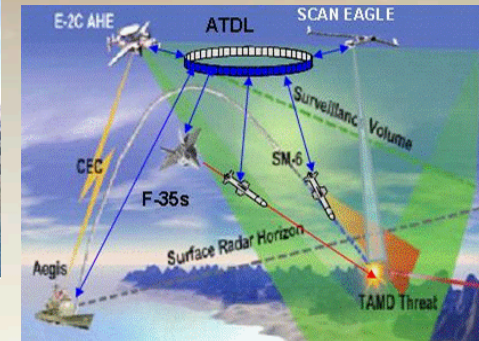
Naval Integrated Fire Control – Counter Air

S&T Focus

- Low observable, low latency ad-hoc network waveform. Wideband operation. SDR integration
- Networking enhancements at the data link layer. Scalability, Policy Based Cognitive Networks Management (PBCNM) Engine and dynamic scheduling with bandwidth and QoS prioritization
- Directionalization (phased arrays) and multi-band operation. Decision aids and collaborative tools for intra- (sensor, weapons, C2 within an ATDL net) and inter-networking with outside links and services (GIG, CANES)

Warfighter Payoff

- Improved survivability against future detector and jammer threats
- Eliminate current throughput and scalability shortfalls to shorten the engagement kill chains, increase the number of missions accomplished per sortie
- Improved automation to reduced manpower needed to manage tactical data link networks

Pillar: FNT
EC Manager: Dr. Santanu Das
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Availability: Conf. hours

Autonomous Persistent Tactical Surveillance

Technical Description

This product autonomously maintains persistent surveillance of activities and entities over a region of interest, 24/7, with an underlying context for real time adaptive surveillance in support of tactical mission objectives.

S&T Focus

- Develop tools which allow units to register their missions, capabilities, information needs into the tactical information space, enabling autonomous ISR to C2 synchronization.
- Develop architecture and services to move information between the tactical information space, the user space and higher information spaces.
- Develop algorithms that autonomously guide information collection based upon knowns and unknowns, cost, tactical gaps, and mission priorities.
- Develop techniques to automatically manage bandwidth and re-synchronize the delivery of data.
- Pre-load, and update, the tactical information space with contextual data.
- Synchronize national collection with tactical mission.
- Perform contextual fusion across tactical, theater and national information spaces

Warfighter Payoff

- Addresses current In-Theater operational ISR deficiencies
- Reduces ISR manpower required in-theater
- Automates the registration of tactical mission tracks and the translation of these tracks to an information need space
- Automates synchronization of data for high level decision makers & warfighters on the ground, all in real time.
- Enables the request and/or modification of national collects based on anticipated information requirements

Pillar: FNT
EC Manager: Dr. Mike Pollock
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Force-Level Radar Resource Management for IAMD

Technical Description

- Advanced algorithms and software for integration to the AEGIS weapon control system to provide dynamic ship & force-level radar management & coordination of radar resources for Integrated Air and Missile Defense (IAMD), including anti-air warfare (AAW) and ballistic missile defense (BMD)

FORCE-LEVEL RADAR RESOURCE MANAGEMENT FOR INTEGRATED AIR & MISSILE DEFENSE

S&T Focus

- Technical approach will apply
    - Emergent control of search and track tasks
    - Priority based threat evaluation
    - Dynamic radar resource manager

Warfighter Payoff

- Reduced radar loading at the ship & force level
- Reduced number of undetected threats
- Engagement of more threats in high density raids
- Higher probability of single ship survivability

Pillar: SHD
EC Manager: CAPT Anthony Ferrari
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Availability: Conf. hours

Sonar Automation

Technical Description

This product will develop and demonstrate technologies to advance the automation of active and passive sonar systems. Advanced active classification algorithms will be applied to active sonar systems. Individual source signals will be isolated prior to classification in passive sonar systems through the application of advanced algorithms. The result will be the ability of operators to handle more receivers in active systems and more beams in passive systems with large arrays.

U.S. Sub   Threat

- Challenges
  - Quiet targets
  - High noise
  - Operator overload
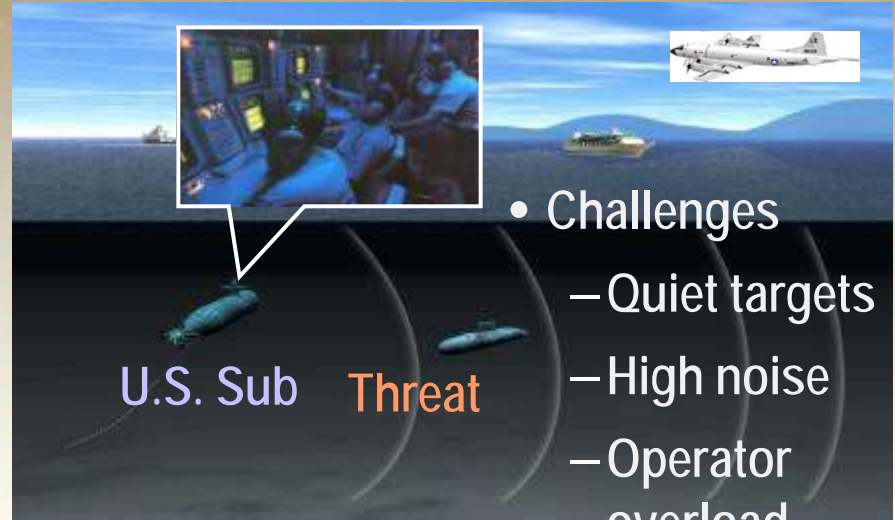
S&T Focus

- Develop advanced algorithms designed to separate broadband and narrowband signals detected by source prior to classification
- Develop robust classification algorithms that do not require prior identification of target or track features to include "featureless" classifiers and "deep learning" algorithm development
- Development of state-of-the-art feature extraction techniques for improved target/clutter discrimination based on multiple waveform feature association

Warfighter Payoff

- Improve sonar system performance
- Reduction of operator workload
- Acceleration of operator acoustic training phase
- Increase operator training opportunities

Pillar: SHD
EC Manager: Dr. David H. Johnson
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Detection and Neutralization of Near-Surface Drifting/Oscillating Mines

Technical Description

This product provides for the detection, classification and neutralization of drifting mines from a single platform by merging the sensors with the weapon. Real-time processing and data fusion will be used to generate high confidence target classifications on-board the platform eliminating the need for post mission analysis (PMA). The technology will enable a single-pass detect-to-engage capability.

S&T Focus

- Development of a Compact Modular Sensor and Processing Suite (CMSS) for on-board detection, classification, and localization of mine like objects.

- Development of a Mine Drift Prediction Tactical Decision Aid (TDA) for planning, situational awareness and maneuver in areas threatened by drifting mines.

Warfighter Payoff

- Merges sensor and weapon, shortening the MCM tactical timeline
- Eliminates the need for time-consuming post mission analysis (PMA)
- Enables real-time, single-pass detect-to-engage (DTE) capability
- Provides real-time mine drift prediction tools

Pillar: STK

Contact Info: Brian Almquist, brian.almquist@navy.mil.

Code 32 Breakout Room

Availability: Conf. hours

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Submarine Survivability - EW

Technical Description

This product will provide compact multi-mission EW payload integrated within existing submarine and offboard hardware and software systems in order to provide advanced EW capabilities, as well as the coordination and distribution of EW techniques between submarine and offboard platforms.
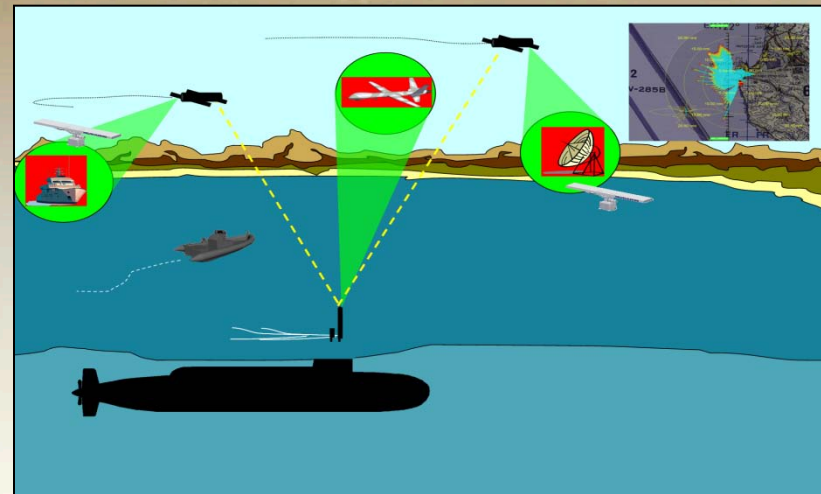
S&T Focus

- Development of a compact EW payload for integration into both submarine and offboard, unmanned platforms
- Development of high speed, cross platform, coordinated and distributed EW techniques
- Development of real-time platform vulnerability assessment tools
- Development of Low Size, Weight and Power (SWaP) EW Hardware

Warfighter Payoff

- Enables Submarine controlled distributed and coordinated EW
- Provides networked resource allocation allowing for efficient EW operations
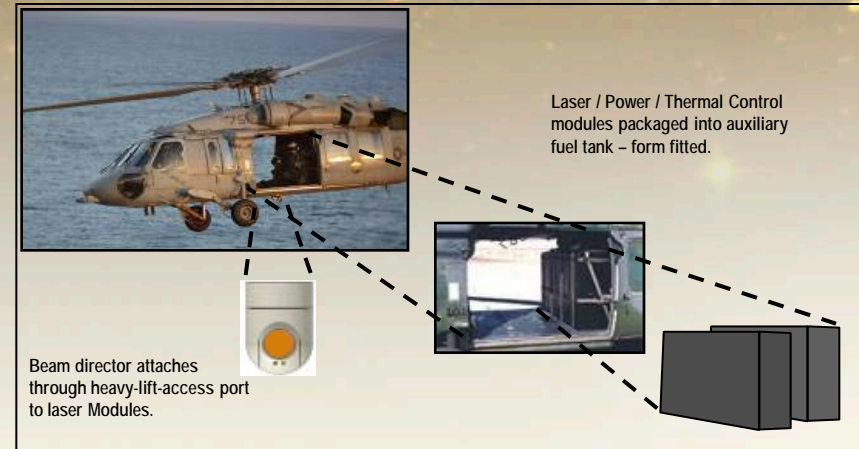- Improves EW capabilities of subsurface systems

Pillar: STK
EC Manager: Dr. Peter Craig
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Availability: Conf. hours

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High Energy SBC Fiber Laser

Technical Description

The High Energy Spectral Beam Combined (SBC) Fiber Laser will develop a fiber-based laser system for use onboard Naval air platforms.   This Future Naval Capability will provide a state-of-the art, cost effective, directed energy capability that complements the existing inventory of kinetic weapons and RF-based self-protection systems.

Laser / Power / Thermal Control modules packaged into auxiliary fuel tank – form fitted.

Beam director attaches through heavy-lift-access port to laser Modules.

S&T Focus

- Development of scalable high power SBC fiber laser.
- Development of an imaging system for target identification, aimpoint maintenance, and battle damage assessment.
- Integration of a high power directed energy system into MH-60S demonstration platform.

Warfighter Payoff

- Provides war fighter with new capabilities that include:
  - Speed of light delivery
  - Enhanced aircraft survivability
  - Improved situational awareness
  - Passive target imaging
- Cost effective with potential for broad applicability:
  - Deep Magazine; inert and non-energetic
  - Power scalable to fit multiple platforms and missions

Pillar: STK
EC Manager: Ken Heeke
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Availability: Conf. hours

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Take Away

- 16 New ECs will be starting next year.

- Industry participation is typically 66%.

- BAAs or RFPs will be released early in CY11 (2nd/3rd Quarter FY11) for contract award prior to FY12.

- Your early engagement can help us refine our plans, prior to BAA/RFP release.

Summary

Enabling Capability Title	Point of Contact
Live, Virtual, & Constructive Training Fidelity	Dr. Amy Bolton; Amy .Bolton@navy.mil
Renewable-Sustainable Expeditionary Power	Ashley Johnson, ashley.g.johnson@navy.mil
Future Joint Counter Radio-Controlled IED Electronic Warfare (JCREW)	Dr. Peter Craig, Peter.Craig@navy.mil
Wide Area Surgical and Persistent Surveillance (WASPS) Capabilities For Tier 2/3 UAVs	Ashley Johnson, ashley.johnson@navy.mil Martin Kruger, Martin.Kruger@navy.mil
Corrosion Mitigation Technologies and Design Integration	Dr. Airan Perez, airan.perez@navy.mil
Integrated Hybrid Structural Management System (IHSMS)	Malinda Pagett, malinda.pagett@navy.mil
Long Endurance Undersea Vehicle Propulsion	Dr. Michelle Anderson, Michele.Anderson1@navy.mil
Fuel Efficient Medium Tactical Vehicle Replacement (MTVR)	Ashley Johnson, ashley.g.johnson@navy.mil
Automated Critical Care System (ACCS)	Dr. Michael Given, michael.given@navy.mil
Advanced Tactical Data Link (ATDL)	Dr. Santanu Das, santanu.das@navy.mil
Autonomous Persistent Tactical Surveillance	Dr. Michael Pollock, michael.pollock@navy.mil
Force Level Radar Resource Management for Integrated Air and Missile Defense (IAMD)	CAPT Anthony Ferrari, anthony.ferrari@navy.mil
Sonar Automation	Dr. David Johnson, david.h.johnson@navy.mil
Detection and Neutralization of Near-Surface Drifting-Oscillating Mines	Brian Almquist, brian.almquist@navy.mil
Submarine Survivability - Electronic Warfare.	Dr. Peter Craig, Peter.Craig@navy.mil
High Energy SBC Fiber Laser System	Ken Heeke, kenneth.heeke@navy.mil

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